

Notice of Allowability

Application No.

09/696,956

Examiner

Charles Chow

Applicant(s)

FISHER, DANIEL E.

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/8/2006.
2. ☒ The allowed claim(s) is/are 1-15, 17-21, 23-29.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
- ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
- ☐ Notice of Informal Patent Application
- ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
- ☐ Examiner's Amendment/Comment
- ☒ Examiner's Statement of Reasons for Allowance
- ☐ Other _____

Detailed Action

1. This office action is for the appeal brief received on 11/8/2006.

Allowable Subject Matter

2. The following is an examiner's statement of reasons for allowance:

Claims 1-15, 17-21, 23-29 are allowable over the prior art of record. The prior arts fail to teach singly, particularly, or in combination, for the claimed features having a filing date of 10/27/2001.

Claims 3-8, 10-13, 17-21, 23, 26, 28-29 were indicated allowable in the previous office action mailed to the applicant & claims 16, 22 were canceled. Claims 1-2, 9, 14-15, 24-25, 27 are allowable over the prior art of record, the prior arts fail to teach the features in independent claims 1, 9, 25, 27, for the features,

the rf bridge coupled to the processor to receive a reference signal from the processor, the reference signal being characterized by a constant predetermined frequency [claim 1],

a processor coupled to the rf bridge to receive an information from the rf bridge,

the processor including a digital frequency source to generate a reference signal based on, using a signal from, the clock source, the reference signal being coupled to the rf bridge [claims 9, 27],

the rf bridge coupled to the processor to receive a reference signal from the processor, the reference signal being coupled to only one of the first and second frequency converter [claim 25],

The prior arts fail to teach the **circuitry structure** formed as described in the independent **claims 3, 5, 6, 21; the first and second center frequency** of the forming a first & second Fourier transform of the information **[claim 17]; the features for the wherein the integration interval is inversely proportional to a difference between the first center frequency and the second frequency [claim 18]; the digital frequency source to generate a reference signal using a signal from a clock source [claims 9, 27].**

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The dependent claims are also allowable due to their dependency upon the independent claims and having further claimed features.

The closest prior art to **Wilson (US 3,816,834)** teaches the rf bridge formed by antenna 4, mixers 6, 14, & a analog reference source 18, associated with the circuitry for the direction finder [figure in front page, & its description in the specification], but fails to teach the rf bridge coupled to the processor to receive a reference signal from the processor.

Weckstrom (US 6,268,829 B1) teaches the rf bridge formed by antennas & mixers 78, 60, 68, control unit 198 [Fig. 4/Fig. 8 & its description in the specification], the control unit [Fig. 5 & its description in the specification], but fail to teach the processor coupled to the mixer for providing a reference signal having constant predetermined frequency.

Janc et al. (US 4,893,316) teaches the clock signal 1934 [Fig. 19, Fig. 6 & its description in the specification] coupled to digital local oscillator 1976, for providing oscillators signals to mixer 1922, 1924, but fails to teach the rf bridge & the rf bridge is coupled to the processor to receive a reference signal from the processor.

Johnson (US 4,245,220) teaches the first, second, third frequency converters coupled to the two antennas for calculating the frequency difference to determining the target location [abstract, frequency different $Af \times (t/T)$, col. 2, lines 7-16]; the analyzing using processor for the signals from filter bank [col. 2, lines 54-600]; the frequency difference in col. 3, lines 55-60] , but fails to teach the circuitry structure formed in claims 3, 5-6, and the where the integration interval is inversely proportional to a difference between the first center frequency and the second frequency.

Other prior arts are also considered but they fail to teach the above allowable features.

Masheff (US 4,876,549) teaches the control circuit 60 for generating clock pulses on line 62 for the direction finding apparatus [abstract, Fig. 2, col. 5, lines 4-39], but fails to teach the digital frequency source to generate a reference signal.

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Stone (US 3,680,124) teaches the determining of the azimuth information from the signal difference from antennas 27, 29 [Fig. 8], the first, second frequency converter 65, but failed to teach the fourth frequency converter & the additional up converter/down converter coupled to the rf bridge and processor, having first, second Fourier transform center frequency.

Cash (US 4,509,052) teaches the interferometer/Doppler target location system (abstract, 1-6), frequency converters 10/12, for measuring elevation angle, azimuth angle and range (abstract, summary of invention, his claims 1, 10), the processor 34 to analyzer frequency difference according to equations (col. 7, lines 3-24).

DesJardins (US 5,570,099) teaches the accurate range and frequency calculation FDOA, using digital signal processing, Hilbert transforms, FIR filters, to analyzing two antenna received signals, to locating a transmitter (abstract, Fig. 1-3, col. 3, lines 35-59; col. 2, line 65 to col. 3, line 25; col. 5, lines 37-45; col. 3, lines 17-31).

Other references are also considered. They are: **Carr et al. (US 4,845,502)**, **Herrmann et al. (US 6,313,79 B1)**, **Morita (US 5,355,767)**, **Kasperkovitz et al. (US 6,784,836 B2)**, **Houghton et al. (US 5,955,993)**, **Kushihara (US 5,796,357)**, **Mruphy et al. (US 5,541,608)**, **Timothy et al. (US 6,366,240 B1)**, **Parl et al. (US 6,259,404 B1)**, **Jones et al. (US 6,392,598 B1)**, **Storey Jr. (US 4,771,290)**, are considered but failed to teach the above allowable features.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles C. Chow whose telephone number is (571) 272-7889. The examiner can normally be reached on 8:00am-5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Chow *cc*

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